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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/826,021	04/16/2004	Harry Tiotantra	STL11607	9067

7590 08/28/2006

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EXAMINER	
WANG, ALBERT C	
ART UNIT	PAPER NUMBER
2115	

DATE MAILED: 08/28/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/826,021	TIOTANTRA ET AL.	
	Examiner	Art Unit	
	Albert Wang	2115	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 1-27 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 1-27 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on 16 April 2004 is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date 4/04.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. Claims 1-27 are pending.

Claim Objections

2. Claim 7 is objected to because of the following informalities: "couplable" is a non-word. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

4. Claims 1-27 are rejected under 35 U.S.C. 103(a) as being unpatentable over Millikan et al., U.S. Patent No. 6,928,039 ("Millikan"), in view of Smith, U.S. Patent No. 6,854,028.

As per claim 1, Millikan teaches a data streaming system, comprising:

a data storage device providing an intermittent data stream (col. 3, lines 28-45), the data storage device having a time-to-fill value (col. 4, lines 6-24, part of restart time);

a buffer circuit receiving the intermittent data stream, providing a buffer data stream, and generating a time-to-exhaust estimate (col. 2, line 59 – col. 3, line 17, comprising memory 26; col. 3, lines 46-67); and

a comparator receiving the time-to-fill and time-to-exhaust estimates and generating a comparator output that couples to the data storage device to control energization of the data storage device (col. 4, line 55 – col. 5, line 13).

However, Millikan does not expressly teach the time-to-fill value is subject to environment disturbances. Smith teaches data storage devices with moving parts, such hard drives, are sensitive to shock and vibration (col. 1, line 59 – col. 2, line 24). It is well known in the art that CD players are prone to skipping when subjected to motion. Smith teaches a data storage device using an environment sensor (fig. 2, accelerometer) to schedule read operations as a function of the environment sensor output (fig. 3; col. 6, lines 5-42; col. 7, lines 1-14). When read operations are scheduled on a duty cycle reading only during for a fraction of the total time, the effective fill rate decreases. The time-to-fill value, which varies inversely to the fill rate, then increases. Thus, the time-to-fill value varies when the data storage device is subjected to shock. At the time of the invention, it would have been obvious to one of ordinary skill in the art to apply Smith's environmental sensor and scheduling to Millikan's system, in order minimize read errors when there is shock. Since the time-to-fill value varies with the amount of shock, it would have been obvious to calculate a time-to-fill estimate.

As per claim 2, Millikan teaches the control of the energization prevents exhausting of data stored in the buffer circuit (col. 4, lines 25-54).

As per claim 3, Millikan teaches the intermittent data stream has a first data transmission rate, and the buffer data stream has a second data transmission rate that is slower than the first data transmission rate (col. 1, lines 43-56).

As per claim 4, Millikan teaches the intermittent data stream refills the buffer circuit before the buffer circuit is depleted of data, so that the buffer data stream is a continuous data stream (col. 4, lines 25-54).

As per claim 5, Millikan teaches the energization cycles on and off to reduce energy consumption in the data streaming system (col. 3, lines 28-45).

As per claim 6, Millikan teaches the buffer data stream has a bit rate that is controllable by a command received from an output device (col. 3, lines 1-17).

As per claim 7, Millikan teaches the data storage device further comprises a data streaming rate estimate output that is coupled to an output device (col. 3, lines 1-17).

As per claim 8, Smith teaches the environmental sensor comprises an acceleration sensor (fig. 2, accelerometer 40).

As per claim 9, Smith teaches the environmental sensor comprises a loss-of-read-channel-data sensor (col. 6, lines 5-42).

As per claims 10-12, it would have been obvious to use any type of sensor that measures a property that affects the time-to-fill value.

As per claim 13, Smith teaches the data storage device comprises a hard disc drive (fig. 2, disk drive 32).

As per claim 14, Smith teaches the data storage device is mounted in a portable device subject to environmental shock (col. 1, line 59 – col. 2, line 24).

As per claim 15, Millikan teaches a method of data streaming, comprising:

coupling an intermittent data stream from a data storage device to a buffer circuit that provides a buffer data stream (col. 2, line 59 – col. 3, line 17; col. 3, lines 28-45);

comparing a time-to-fill value and a buffer time-to-exhaust estimate (fig. 3, steps 58 and 60); and

controlling energization of the data storage device by generating a comparator output that couples to the data storage device (col. 4, line 55 – col. 5, line 13).

However, Millikan does not expressly teach the time-to-fill value is subject to environment disturbances. Smith teaches data storage devices with moving parts, such hard drives, are sensitive to shock and vibration (col. 1, line 59 – col. 2, line 24). It is well known in the art that CD players are prone to skipping when subjected to motion. Smith teaches a data storage device using an environment sensor (fig. 2, accelerometer) to schedule read operations as a function of the environment sensor output (fig. 3; col. 6, lines 5-42; col. 7, lines 1-14). When read operations are scheduled on a duty cycle reading only during for a fraction of the total time, the effective fill rate decreases. The time-to-fill value, which varies inversely to the fill rate, then increases. Thus, the time-to-fill value varies when the data storage device is subjected to shock. At the time of the invention, it would have been obvious to one of ordinary skill in the art to apply Smith's environmental sensor and scheduling to Millikan's system, in order minimize read errors when there is shock. Since the time-to-fill value varies with the amount of shock, it would have been obvious to calculate a time-to-fill estimate.

As per claim 16, Millikan teaches preventing exhaustion of the buffer circuit by the controlling of energization (col. 4, lines 25-54).

As per claim 17, Millikan teaches transmitting data from the data storage device at a faster rate than transmission of data from the buffer circuit (col. 1, lines 43-56).

As per claim 18, Millikan teaches refilling the buffer circuit with data from the intermittent data stream before the buffer circuit is depleted of data (col. 4, lines 25-54).

As per claim 19, Millikan teaches reducing energy consumption in the data storage device by cycling the energization on and off (col. 3, lines 28-45).

As per claim 20, Millikan teaches controlling a bit rate of the buffer data stream by an output device (col. 3, lines 1-17).

As per claim 21, Smith teaches the environmental sensor sensing an environmental variable selected from the group: acceleration, loss-of-read-channel-signal, humidity, temperature, low battery (fig. 2, accelerometer 40).

As per claim 22, Millikan teaches coupling a data streaming rate estimate output from the data storage device to an output device (col. 3, lines 1-17).

As per claim 23, Smith teaches mounting the data storage device in a portable device subject to environmental shock (col. 1, line 59 – col. 2, line 24).

As per claim 24, Millikan teaches a data streaming system, comprising:

a data storage device providing an intermittent data stream (col. 3, lines 28-45), the data storage device having a time-to-fill value (col. 4, lines 6-24, part of restart time);

a buffer circuit receiving the intermittent data stream, providing a buffer data stream (col. 2, line 59 – col. 3, line 17, comprising memory 26; col. 3, lines 46-67); and

comparator means for receiving the time-to-fill estimate and a time-to-exhaust estimate and for controlling energization of the data storage device (col. 4, line 55 – col. 5, line 13).

. However, Millikan does not expressly teach the time-to-fill value is subject to environment disturbances. Smith teaches data storage devices with moving parts, such hard drives, are sensitive to shock and vibration (col. 1, line 59 – col. 2, line 24). It is well known in

the art that CD players are prone to skipping when subjected to motion. Smith teaches a data storage device using an environment sensor (fig. 2, accelerometer) to schedule read operations as a function of the environment sensor output (fig. 3; col. 6, lines 5-42; col. 7, lines 1-14). When read operations are scheduled on a duty cycle reading only during for a fraction of the total time, the effective fill rate decreases. The time-to-fill value, which varies inversely to the fill rate, then increases. Thus, the time-to-fill value varies when the data storage device is subjected to shock. At the time of the invention, it would have been obvious to one of ordinary skill in the art to apply Smith's environmental sensor and scheduling to Millikan's system, in order minimize read errors when there is shock. Since the time-to-fill value varies with the amount of shock, it would have been obvious to calculate a time-to-fill estimate.

However, Millikan does not expressly teach the time-to-fill value is subject to environment disturbances. Smith teaches data storage devices with moving parts, such hard drives, are sensitive to shock and vibration (col. 1, line 59 – col. 2, line 24). It is well known in the art that CD players are prone to skipping when subjected to motion. Smith teaches a data storage device using an environment sensor (fig. 2, accelerometer) to schedule read operations as a function of the environment sensor output (fig. 3; col. 6, lines 5-42; col. 7, lines 1-14). When read operations are scheduled on a duty cycle reading only during for a fraction of the total time, the effective fill rate decreases. The time-to-fill value, which varies inversely to the fill rate, then increases. Thus, the time-to-fill value varies when the data storage device is subjected to shock. At the time of the invention, it would have been obvious to one of ordinary skill in the art to apply Smith's environmental sensor and scheduling to Millikan's system, in order minimize read

errors when there is shock. Since the time-to-fill value varies with the amount of shock, it would have been obvious to calculate a time-to-fill estimate.

As per claim 25, Millikan teaches the controlling of energization prevents exhausting the buffer circuit (col. 4, lines 25-54).

As per claim 26, Millikan teaches the controlling of energization reduces energy consumption on the data streaming system (col. 3, lines 28-45).

As per claim 27, Smith teaches the environmental sensor senses acceleration (fig. 2, accelerometer 40).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Albert Wang whose telephone number is 571-272-3669. The examiner can normally be reached on M-F (9:30 - 6:00).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Thomas C. Lee can be reached on 571-272-3667. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

AW

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